

National 4 Homework 30

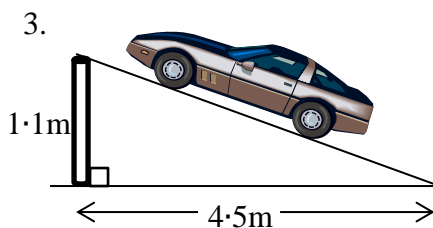
You can use a calculator in questions 2, 3 and 8.

1. Multiply out and simplify. $7(3x-4)+3(2-5x)$

2. A photograph with length 14cm and width 11cm is copied and enlarged to make a new photograph which is similar in shape to the first one. The enlarged photograph has a length of 35cm.



Calculate the width, w , of the enlarged photograph.



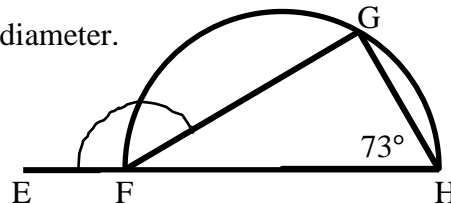
A garage has a variable slope ramp which it uses to test the reliability of a car's handbrake.

The ramp can be raised or lowered at one end.

If it is possible to raise the ramp by 15° or more without the car rolling backwards then the handbrake is declared reliable.

A car begins to roll backwards when the ramp is raised to 1.1m . Is its handbrake reliable? Show all your working.

4. The diagram shows a semi-circle with FH as diameter. G lies on the circumference. EH is a straight line.



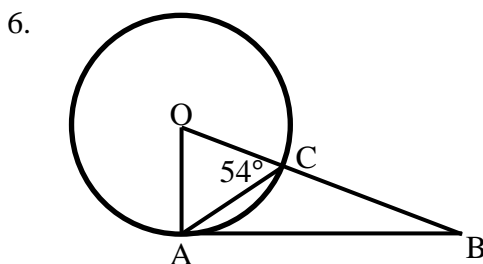
Calculate the size of angle EFG .

5. Solve for x .

(a) $4x+5=47-2x$

(b) $8x-3\leq 29$

(c) $4x+2(2x+1)=3x+22$



The diagram shows a circle with centre O .

AB is a tangent to the circle at A .

OB intersects the circle at C .

Angle $OCA = 54^\circ$.

Calculate the size of angle OBA .

7. Change the subject of the formula $m=cw-g$ to c .

8. A submarine descends below sea-level at an angle of 38° . At what depth is the submarine after travelling 540m horizontally?

